WHAT IS CLAIMED IS:

1. A method of measuring at least two cultivation parameters in a cell culture, comprising:
   (a) establishing at least one cell culture in at least one bioreactor, wherein each bioreactor comprises at least two optical chemical sensors;
   (b) exciting the optical chemical sensors to generate emission and/or light absorption;
   (c) detecting the emission and/or absorption obtained in (b);
   (d) analyzing the detected emission and/or absorption obtained in (c) to assess the culture parameters measured.

2. The method of claim 1, wherein the optical chemical sensors are excited using at least one light emitting diode per optical chemical sensor.

3. The method of claim 1, wherein the emission and/or absorption is detected using at least one photodetector, wherein the wavelength range of the photodetector corresponds to an emission and/or absorption wavelength of the photodetector's respective optical chemical sensor.

4. The method of claim 1, wherein the culture parameters measured are selected from the group consisting of: pH, dissolved oxygen, carbon dioxide, glucose concentration, nutrient concentration, lactate concentration, phosphate concentration, ammonia concentration, metal ion concentration, temperature and combinations thereof.

5. The method of claim 1 or 4, wherein the optical density of the culture is measured.

6. A method of measuring at least two cultivation parameters in at least two cell cultures, comprising:

(a) establishing at least one cell culture in at least two bioreactors in parallel, wherein each bioreactor comprises at least two optical chemical sensors;

(b) exciting the optical chemical sensors to generate emission and/or light absorption;

(c) detecting the emission and/or absorption obtained in (b);

(d) analyzing the detected emission and/or absorption obtained in (c) to assess the culture parameters measured.

7. The method of claim 6, wherein the optical chemical sensors are excited using at least one light emitting diode per optical chemical sensor.

8. The method of claim 6, wherein the emission and/or absorption is detected using a spectrometer and diode array.

9. The method of claim 6, wherein the culture parameters measured are selected from the group consisting of pH, dissolved oxygen, carbon dioxide, glucose concentration, phosphate concentration, ammonia concentration, lactate concentration, metal ion concentration, nutrient concentration, temperature and combinations thereof.

10. The method of claim 6 or 9, wherein the optical densities of the cultures are measured.

11. A bioprocessing system, comprising:

(a) at least one bioreactor;

(b) at least two optical chemical sensors associated with each bioreactor, wherein the optical chemical sensors are located within each bioreactor;

(c) at least one excitation source corresponding to each optical chemical sensor; and

(d) at least one detector.

12. The bioprocessing system of claim 11, wherein each bioreactor is a well housed in a multiple-well plate.

13. The bioprocessing system of claim 12, wherein the optical chemical sensors are sensor patches positioned at the bottom of the well.

14. The bioprocessing system of claim 11, wherein each bioreactor is a cuvette.

15. The bioprocessing system of claim 14, wherein the optical chemical sensors are sensor patches affixed to at least one wall of the cuvette.

16. The bioprocessing system of claim 11, wherein each bioreactor is a culture vial housed within a receptacle of a multi-receptacle bioreactor platform.

17. The bioprocessing system of claim 16, wherein the optical chemical sensors are sensor patches positioned at the bottom of the culture vial.

18. The bioprocessing system of claim 17, wherein the excitation source is a light emitting diode.

19. The bioprocessing system of claim 18, wherein the detector is an integrated spectrometer and diode array.

20. The bioprocessing system of claim 11, further comprising a bioreactor platform containing at least one receptacle to house each bioreactor.

21. The bioprocessing system of claim 20, further comprising a sub-platform, wherein the bioreactor platform is positioned on top of the sub-platform.

22. The bioprocessing system of claim 21, further comprising an agitator, wherein the sub-platform is positioned on top of the agitator.

23. The bioprocessing system of claim 22, further comprising a positioning table, wherein the positioning table is positioned below the agitator such that the positioning table is capable of moving the bioreactor in an x-y or x-y-z plane to a predetermined position.

24. The bioprocessing system of claim 11 or 23, further comprising a data acquisition and control system connected to components of the bioprocessing system via cabling means.

25. A method of optimizing at least two cultivation parameters in a cell culture, comprising:

(a) establishing at least one cell culture in at least one bioreactor, wherein each bioreactor comprises at least two optical chemical sensors;

(b) exciting the optical chemical sensors to generate emission and/or light absorption;

(c) detecting the emission and/or absorption obtained in (b);

(d) analyzing the detected emission and/or absorption obtained in (c) to determine whether or not to adjust culture conditions to obtain optimization of the cultivation parameters.

26. The method of claim 25, wherein the optical chemical sensors are excited using at least one light emitting diode per optical chemical sensor.

27. The method of claim 25, wherein the emission and/or absorption is detected using at least one photodetector, wherein the wavelength range of the photodetector corresponds to an emission and/or absorption wavelength of the photodetector's respective optical chemical sensor.

28. The method of claim 25, wherein the culture parameters measured are selected from the group consisting of pH, dissolved oxygen, carbon dioxide, glucose concentration, nutrient concentration, temperature, lactate concentration, ammonia concentration, phosphate concentration, metal ion concentration and combinations thereof.

29. The method of claim 25 or 28, wherein the optical density of the culture is determined.

30. A method of optimizing at least two cultivation parameters in at least two cell cultures, comprising:

(a) establishing at least one cell culture in at least two bioreactors in parallel, wherein each bioreactor comprises at least two optical chemical sensors;

(b) exciting the optical chemical sensors to generate emission and/or light absorption;

(c) detecting the emission and/or absorption obtained in (b);

(d) analyzing the detected emission and/or absorption obtained in (c) to determine whether or not to adjust culture conditions to obtain optimization of the cultivation parameters.

31. The method of claim 30, wherein the optical chemical sensors are excited using at least one light emitting diode per optical chemical sensor.

32. The method of claim 30, wherein the emission and/or absorption is detected using a spectrometer and diode array.

33. The method of claim 30, wherein the culture parameters measured are selected from the group consisting of: pH, dissolved oxygen, carbon dioxide, glucose concentration, nutrient concentration, temperature, lactate concentration, ammonia concentration, phosphate concentration, metal ion concentration and combinations thereof.

34. The method of claim 30 or 33, wherein the optical densities of the cultures are determined.